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PRESENT AND POTENTIAL AGRICULTURAL AREAS IN ALASKA

Smooth bromegrass on the Fairbanks Experiment Station in the Tanana Valley. Properly fertilized bromegrass makes excellent hay, silage and pasture in Alaska. (Soil Conservation Service Photo)

University of Alaska

ALASKA AGRICULTURAL EXPERIMENT STATIONS

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PALMER, ALASKA

In cooperation with the

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH ADMINISTRATION

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PRESENT AND POTENTIAL AGRICULTURAL AREAS IN ALASKA

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THE LAST FRONTIER

The fiction of Jack London; the poetry of Robert W. Service and the paintings of Sidney Laurence set a romantic stage for wanderlust dreams of Alaska, even today. Alaska—The Last Frontier, Alaska—the Golden Nugget of the North, Alaska—the brooding land where only the hardy survive. Impressions are of ice and snow, blizzards and cold, darkness and danger. The heady vigorous summers, the awesome scenery, the succulent plant growth and the abounding wildlife are forgotten in the turbulence and roughness of a rowdy north. Youngsters still come to Alaska expecting to trap beaver, foxes and muskrats for cash and to stay fat on a free diet of fish, moose, caribou, bear and berries.

This picture no longer represents most of Alaska. Dog teams have been replaced by airplanes, fishing boats by traps, the lone prospector by corporation draglines and dredges, the trapline by a job on a construction crew. Alaska still is a lusty, brawly, noisesome young giant. But its energies now are focused on building an Empire, not solely on reaping its resources. Transportation, trade, industry, service, families, schools and research are increasing rapidly and probably will continue to increase for years to come.

The age of exploitation is nearly over. The age of settlement, expansion and development has arrived. Agriculture will play an important part in that future. Of Alaska's 586,400 square miles, about 571,000 is estimated to be land. Somewhere between 1 million and 3 million acres of this probably are suitable for cultivation, between 3 and 5 million acres are presently suitable for limited grazing, another 40 million acres contain merchantable timber and 85 million acres are of open woodland types. Most of these potential agricultural resources are untapped.

The purpose of this publication is to bring together from many sources applicable information for the benefit of newcomers seriously interested in settling and in farming. Additional information on particular areas or on particular enterprises may be had by contacting the agencies listed at the end of this report.

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The Matanuska Experimental Farm located 6 miles from Palmer as seen from the south approach. Research conducted here and at the Fairbanks Station (see cover) provides the basic information for improved farming in Alaska.

Part of the Experimental Fur Station at Petersburg in Southeastern Alaska. Recent research in the use of antibiotics and of fish wastes may make possible a revival of commercial fur farming in parts of the Territory. Problems of raising foxes, mink and martin are studied at this station.

ALASKA'S AGRICULTURE TODAY

Alaska's climate limits crop growth and maturity. However, this condition is similar to that in many agricultural sections of the United States. Juneau has an average of 172 days between killing frosts with an annual precipitation of 84 inches, Seward 132 days and 74 inches, Anchorage 110 days and 14 inches, the Matanuska Valley (average of several stations) 110 days and 15 inches, Fairbanks 89 days and 12 inches. Mean summer temperatures are so low as to preclude the growing of warm-weather crops on most sites.

The short growing season is compensated to some extent by long hours of daylight. Low precipitation is offset to a large extent by lower rates of evaporation and transpiration. Experience indicates that supplemental irrigation often pays during the dry spring season in the Matanuska Valley and northward. At Ft. Yukon, for example, makeshift irrigation of home gardens by water pumped from the Yukon River all during the growing season is a common paying practice. Of course, there are no commercial farms at Ft. Yukon now.

Commercial agriculture in Alaska is an outgrowth of the establishment of military bases during World War II. About 13,000 acres were cultivated in 1952 and another 3,000 - 5,000 acres of cleared land were not cropped. Most of the current commercial agriculture is carried on in the Matanuska Valley in the Cook Inlet area. The Tanana Valley around Fairbanks in the interior now is of second importance. The coastal area on the western edge of the Kenai Peninsula ranks third in importance but has few commercial farms. Grazing leases for both cattle and sheep were in effect on 518,462 acres reaching from Kodiak to Unalaska and Umnak in the Aleutian Chain and on 39,640 acres in the Matanuska Valley-Susitna area during 1952. Rapid expansion of farming is being hindered by high costs of clearing land, a shortage of venture capital, the shortage of labor, and speculation in land. Land laws ill-adapted to Alaskan conditions and lack of suitable credit prevent rapid settlement by bona fide farmers of additional areas adapted to agriculture. It is hoped that these conditions will be corrected in the near future.

Development of cheaper power, improved transportation, increased populations and the resulting anticipated demand for agricultural products will increase the need for agricultural development. Alaska never can hope to be self-supporting in agricultural products, but large strides will be made in closing the existing gap.

MAJOR AGRICULTURAL REGIONS

To see where present developments are and where anticipated production will occur, turn to the map inside this folder. Since most newcomers visit Southeastern Alaska first, and since we have to start somewhere, let's examine the available resources of that area.

Southeastern Alaska

Vast forests of western hemlock, Sitka spruce, western red cedar and Alaska yellow cedar reach from timberline to shoreline on the precipitous mountain slopes typical of this area. These coastal woodlands reach from Portland Canal to Glacier Bay, pick up again on Prince William Sound and follow along the south side of the Kenai Peninsula. They are largely included in the two National Forests. The U. S. Forest Service estimates that an annual harvest of over a billion board feet of pulpwood, plyboard, lumber and various byproducts can be harvested forever from these coastal National Forests of nearly 21 million acres. Daily production of 2,750 tons of newsprint is possible from these resources. Lumber has been sawed in some areas for many years. A pulpwood mill at Ketchikan and a plywood factory at Juneau were being constructed in 1952. Other plants are planned for the national forests where timber harvesting can be under practices prescribed by the U. S. Forest Service.

The Fur Experimental Farm of the Alaska Agricultural Experiment Station located at Petersburg is conducting nutrition studies utilizing fish wastes and antibiotics which may encourage fur farmers to return to Alaska. Few remain in the Territory now.

Around every city of size in southeastern Alaska are found dairies to satisfy local demand for fresh milk. Also there are a few small poultry flocks. There are few sizable cleared areas. All concentrate feed is shipped in from the States although more pasturage and silage could be produced than at present. Gardening and general farming are difficult because of extremely high rainfall and lack of other suitable growing conditions. However, a few families grow very satisfactory gardens in all parts of southeastern Alaska.

A favorable local condition of glacial mountains sheltering small coastal valleys exists at the end of the Lynn Canal in southeastern Alaska. As a result, Haines strawberries grow luxuriantly and have good color, flavor and size. Northern species of apples and cherries bear fruit each year, while cane fruits yield prolifically. Vegetables, including tomatoes and peppers, can be grown in favored spots. Hay, grain and pasturage for dairy cattle grow, but often are difficult to cure. Commercial farming in the area has been limited by the absence of a market.

Large iron ore deposits near Klukwan and the proposed $40 million aluminum plant at Taiya near Skagway, if developed, will provide a market for all fruits, vegetables, fresh milk and eggs that can be produced in these small areas.

A reconnaissance survey by technicians of the Soil Conservation Service and the Experiment Station during October 1952 indicated that there is relatively little tillable land suitable for such purposes. Most of the tillable land in the broader parts of the valley will be required for build-

ing sites if industrialization occurs. Relatively fertile lands further back are heavily timbered. These forested acres should be maintained to supply local forest products. Clearing and fitting costs of these lands for cultivated crops would be prohibitive.

If industrialization comes to this part of Alaska, there will be a moderate increase in part-time farming but no large volume of agricultural production is foreseen.

Kenai Peninsula

West of the Chugach National Forest and the Moose Reserve, covering perhaps a third of the western part of the Kenai Peninsula is an area of gently rolling ridges interspersed with poorly-drained flats and marshes. Three detailed soils surveys made in this area indicate wide variation in soil quality. Between 100,000 and 140,000 acres are estimated to be suitable for some kind of cultivation.

Scattered agricultural experience indicates that potatoes and hardy truck crops grow well "on the lower bench" at Homer, in the Kenai-Kasilof area and in favored spots throughout the rest of the area. A generally cool, moist climate usually precludes ripening grain, makes hay-curing difficult, and retards growth of vegetables over much of this section. The Sterling Highway together with military construction in the area has opened a market for products from the peninsula.

Family gardens grow well in southeastern Alaska wherever the soil can be drained sufficiently. These prize winning entries at the Juneau Fair in 1952 were by children of the Winfield Children's Home. (Photo by J. M. Greany, Juneau)

Hillsides in the Homer area of the Kenai Peninsula are subject to erosion. Beef, dairy and sheep enterprises are logical uses for this area. Certain hardy truck crops do well on protected sites.

Much of the area south of the Kasilof River and Tustumena Lake was burned over so severely that natural reforestation did not occur. A rank growth of native grasses, weeds and flowers now covers these grasslands. This vegetation reaches into the Caribou Hills and is potentially excellent grazing for thousands of head of cattle and sheep for 4 to 5 months of the year.

Heavy snows and damp cold weather together with the low feeding values of ripe vegetation preclude winter ranging in most of this area. Relatively little improvement of the native glades would allow harvest of silage for winter feed, or establishment of cultivated grasses such as timothy, bromegrass, reed canary grass or others could be established.

Open sheds to protect livestock from cold winds, wet snow, and cold rains, and trench or upright silos for storage of winter feed supplies are minimum necessities. Livestock "roughed" through the winter gain weight rapidly on the highly nutritious new summer growth of these grassland areas.

Little natural grassland occurs north of the Kasilof River. Timber varies from thick stands of "moose browse" to heavy stands of spruce. Land usually must be cleared and broken before it can be used for agriculture. Several small dairies and a few small truck farms already are established in this section. Rather heavy applications of fertilizers increase returns from all crops. Yields of potatoes, vegetables and silage are comparable to those of the Matanuska Valley for fields of similar cultural condition.

In the Kenai-Kasilof area there are several thousand acres suitable for cropping. Most of this land must be cleared. Field in this photo is owned by Archie McLane, a long-time resident near Kasilof. Timothy and alsike clover in the meadow above does well in this locality but is not so satisfactory in either the Matanuska or Tanana Valleys.

The danger of wind and water erosion, the climatic conditions contributing to lush growth of roughages, and the expanding market for livestock products make dairying or meat production (beef or sheep) the logical major enterprises for this area. Poultry, potatoes and hardy vegetables will be produced in limited quantities, but acreage requirements in the area for these crops will be small. Prospects for ripening and harvesting grain are very poor.

The Anchorage - Matanuska - Susitna Area

Due to the rapid expansion of both the Anchorage metropolitan area and the nearby military installations, there are considered to be no agricultural lands from Turnagain Arm up the east side of Cook Inlet to the Knik River. North of the Knik River at the head of Cook Inlet lies the Matanuska Valley, home of the famous Matanuska Colony, and the Susitna Valley lies to the west.

Arable lands in these 2 adjoining valleys are derived from glacial deposits. In many places, especially in the eastern part of the Matanuska Valley, surfaces have been laid down and reworked by wind. Suitability for cultivation varies greatly within short distances because of uneven depths to the glacio-fluvial cobbly base. Areas of gravel outcroppings are interspersed with areas of deep silt.

There were 117 families having a total of over 1,000 acres cleared in the Matanuska Valley prior to 1935 and the advent of the Colony. Old reports show that a considerable tonnage of potatoes was harvested during the railroad construction period. As soon as the railroad was completed, however, no market could be found for potatoes and other vegetables.

For several years the Alaska Railroad operated a small creamery at Curry. Later it was moved to the Matanuska Experiment Station. These steps laid the groundwork for the Matanuska Valley Farmers Cooperating Association's creamery and dairy plant which in 1951 - 1952 did a gross business of $1,542,000.

Agricultural development of this area was slow until the outbreak of World War II even with the financial and physical aid of the Matanuska Colony. Proponents of the Colony believed that small, subsistence type farms were desirable in Alaska; their plans and programs called for 40-acre tracts with the operators working away from the farm to earn the cash necessary for living. Many settlers apparently had different ideas. Some left their 40-acre tracts. Others held on and added to their original holdings whenever adjacent lands became available. Specialized farming is developing as rapidly as land can be cleared for it.

While average holdings of cleared land were small, settlers had no alternative but to farm intensively, producing chiefly truck crops and potatoes. These required large amounts of hand labor and returned a

Palmer boasts a population of nearly 1,000 and is the only town in Alaska supported primarily by agriculture. Milk, potatoes, truck crops and eggs move from this center in the Matanuska Valley to markets at Anchorage or the military bases about 50 miles away. (Photo by Gyuriak)

large income per acre. The colonization land-clearing program was completed in 1948 and land clearing since that time has been done by private contract.

Between 600 and 700 acres per year have been cleared in this area during each of the years 1949 - 52. Consequently, about 75 farms now have sufficient cleared land to allow specialized full-time farming. About 60 of these are commercial dairy farms having an average of 75 acres of cropland and 15 dairy cows. The other 15 farms grow potatoes or vegetables having an average of about 40 acres in crops. Approximately 200 additional families have smaller acreages in production and still depend on non-farm income to supplement their potato and truck crop enterprises. Some 15 poultry flocks of between 150 and 1,200 birds are located in the area. Most of them are supplemental enterprises on dairy or truck farms.

Dairying appears to be the climax type of farm organization in the Matanuska Valley with a few specialized potato and truck farms interspersed throughout. Because winter winds cause severe soil erosion over much of this section, winter ground cover must be provided. Grass pastures, meadows and grain stubble are necessary for soil protection in most farm plans.

In the eastern and central portions of the Matanuska Valley, virtually all tillable land is in private ownership. All the good land is taken. Nearly all farm holdings include uncleared portions which will be cleared eventually for crop production. Few farms now are of optimum size for efficient field management. Farm transfers occur fairly frequently and opportunities are good for buying developed or partially developed tracts in the Matanuska Valley proper.

This well-kept dairy farm north of Palmer is owned and operated by one of the original Colonists. Dairying is the major enterprise in the Matanuska Valley. (Photo by Gyuriak)

Farms in the western Matanuska Valley and the lower Susitna Valley are scattered, partly because shallow soils limit profitable land use to a livestock economy, partly because transportation is unavailable and partly due to the recency of homesteading in the area. About 2½ townships in this area were opened to homesteading in August 1947. Most veterans who acquired tracts lacked capital and experience to develop operating units. Many of these tracts now are in absentee ownership.

South and west of this area, between the Susitna mountains and Cook Inlet, lies an area of wooded ridges interspersed with bogs, marshes and small lakes. Little concrete information exists concerning the area. It is known, however, that there are 2 stands of Alaska white birch (but dissimilar to the white birch of the United States). These stands cover about 130,000 acres and are estimated to contain in excess of 250 million board feet of merchantable timber. A stand of this apparent magnitude could be the basis for a profitable lumber and veneer plant.

Other small areas of relatively fertile well-drained lands in this general area extend northward up the Susitna Valley and the drainages of its tributaries, the Yentna and Skwentna. Below the 1,000 foot elevation level there are estimated to be land resources for approximately 200 farms. Most of them ultimately will be livestock farms, probably dairy or beef, depending on mountain ranges and hillsides for summer feed and the cultivable areas for winter feed production.

The Tanana Valley Area

Early agricultural settlement of the Tanana Valley, as that of the Matanuska Valley, resulted from the gold rushes and railroad construction. In fact, during 1920 there were 107 farms having 1,764 acres in cultivated crops near Fairbanks. Sufficient wheat was grown to supply a small flour mill and surplus hay and potatoes were sold to contractors and suppliers in the area. Agriculture languished after completion of the Alaska Railroad and with the declining mining activity until there were probably only 5 or 6 men still farming. Most of these were bachelors. Much of the former cropland grew up to brush and scrub.

Renewed interest in agriculture followed World War II. Many young families have settled on available lands under provisions of the G. I. Bill. There now are over 100 homesteading families but most still have little or no land cleared for production.

Soils in the Tanana Valley and adjacent areas range from a coarse through fine loamy sands on the valley floors to the heavy silt loams on slopes. All soils are apt to have a high mica content which contributes

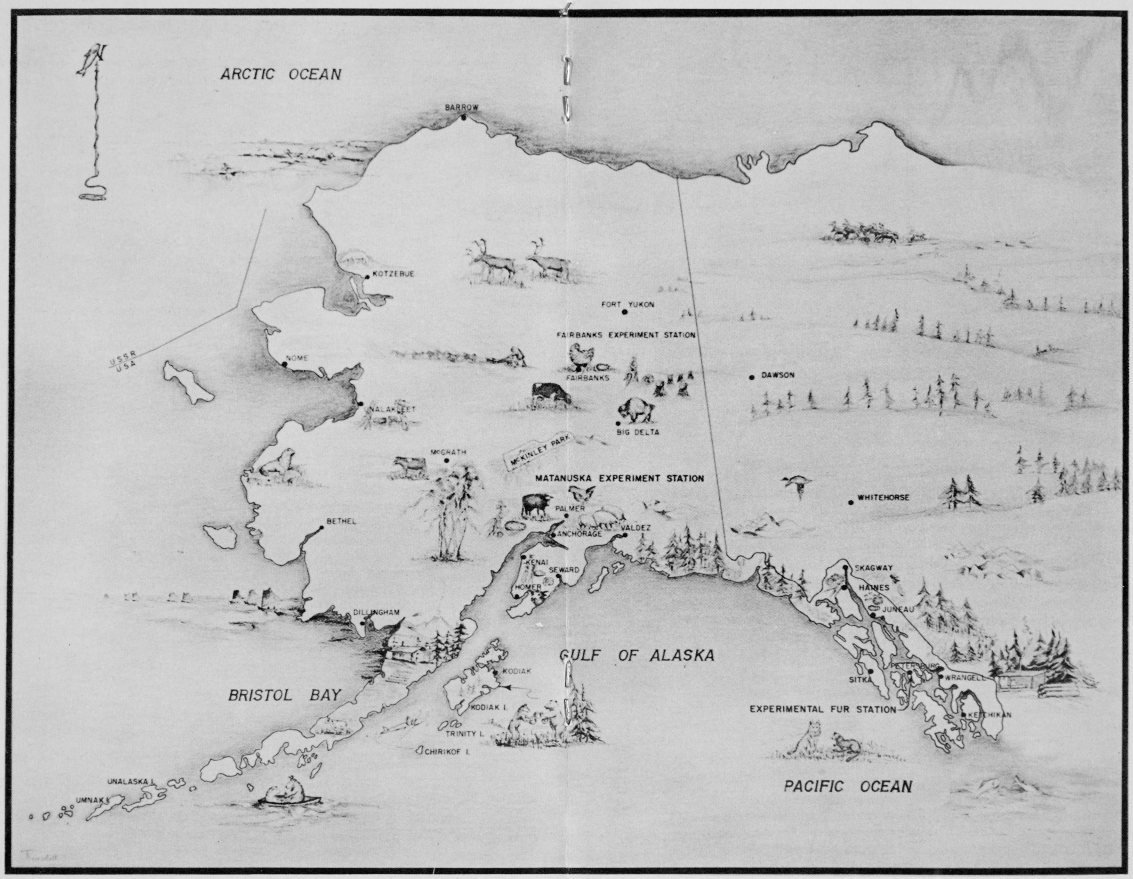
to erodability. Hillsides which should be farmed on contour for erosion control still are cultivated up and down the hills for ease of machine operations.

One large commercial dairy and the Agricultural Experiment Station have all but a scattered few of the cows in the area. A few homesteaders keep milk goats and chickens. Feed production and domestic water supplies limit the feasibility of livestock farming at present. Most homesteaders depend on potatoes and truck crops for their agricultural income. Several former large farms now lie idle. Aside from these and the large dairy and the Experiment Station, an average farm in this area contains about 30 acres of cropland. Of this acreage half was idle, in green manure, or fallow in 1950.

A few homesteaders are clearing land and developing farms. Most work for wages in Fairbanks or at the military bases. High cost land clearing and well-drilling and danger of differential land settling due to permafrost [1] action are serious deterrents to agricultural development. Several families would develop dairy farms if domestic water were available and if they could clear additional land. These families now grow small acreages of potatoes and vegetables.

1 Permanently frozen masses of ice which begin melting when the insulating cover of moss and trees is removed. Several fields in the Fairbanks area have become untillable due to the resulting differential settling of the soil.

Most farming in the Tanana Valley is on the hillsides where there is less hazard from frosts. Soils on south facing slopes warm early in the spring. North slopes receive less light and solar radiation and are also susceptible to differential land settling as ice lenses and frost layers melt away after land clearing. (Soil Conservation Service photo)



Present indications are that agricultural development during the next few years will occur on the Kenai Peninsula between Homer and Kenai, in the Matanuska-Susitna area now centered around Palmer and in the Tanana Valley near Fairbanks. However, there are many other areas that could be developed when industrial populations locate within transportation distance of these tillable lands.

Thick stands of spruce, birch and other trees and a heavy ground cover of moss make land clearing expensive in the Tanana Valley. The homesteader takes a calculated risk that his land will drain, that there are no ice lenses to melt and cause differential settling, that he is not located in a frost pocket and that he will be able to develop an ample supply of water for domestic use. (Soil Conservation Service photo)

The potential agricultural lands of this area are extensive. They reach from the Big Delta area on the east to the area around Nenana in the west. Land capabilities vary greatly within short distances. Additional potential cropland is added each year as further studies are made and knowledge of permafrost conditions is patched together. For example, it now appears that many acres of bottomlands formerly considered useless can be cleared, drained and the frost driven down to the depth where it will not interfere with cultivation of grain and hardy truck crops. Possibly 300,000 acres suitable for cropping lies in this broad area. Much of it probably will be developed for grain production and dairy farming if it ever is used for agriculture.

The Alaska Peninsula and Adjacent Islands

Lush native grasses, sedges, and other forage plants grow profusely from Kodiak and the Bristol Bay area westward on the Aleutian Chain. Most of these islands are treeless and some of them are too rugged for livestock. Many of them have no beaches or harbors. The Bureau of Land Management, Department of the Interior, already has leases established on most of the more desirable locations. Stock raising is not yet an established industry in most of these areas or, in fact, any place in Alaska. Additional range surveys are being made and future development of adapted transportation equipment may open other islands to economic exploitation. Beef cattle from Kodiak Island are sold locally.

Carcasses from Chirikof Island are flown to Palmer for wholesale processing and sale. Some sheep and beef from Umnak and Unalaska have been killed spasmodically for immediate consumption. Some premium wool has been shipped to Stateside wool markets.

Eagles, ravens and foxes are reported to cause severe losses, particularly among the lambs on the Islands. Brown bear kill some cattle and horses on Kodiak Island and predators would be a factor to consider if livestock enterprises were attempted on the Alaska Peninsula.

Small areas suitable for garden farming are thought to exist between Bristol Bay and Cook Inlet. Vegetables and a small acreage of grain are grown near Lake Clark and Iliamna Lake.

Other Areas Suitable for Agriculture

Although detailed surveys never have been made of the following areas, observations by travelers qualified in agricultural research indicate that production may be feasible and desirable at some future date.

Eskimos of the Unalakleet village have grown fine gardens using only fish offal as fertilizer. Fresh vegetables were sold in Nome. A former missionary leader was the guiding force in the garden development. Since he left, gardening has declined. Many of the men now leave the village for distant summer employment. Soil profiles as seen from the cut banks on the Unalakleet River indicate that the soils in the river valley should be more productive than gardens now growing in the gravelly area of the village. However, the area of soils suitable for cropping is not extensive.

Barley, oats and wheat grow well in the Matanuska and Tanana Valleys when seeded early and properly fertilized. Extensive efforts are being made to develop earlier maturing, higher yielding varieties which can be utilized by Alaskan farmers for livestock and poultry feed. (Photo by Gyuriak)

Low quality of product and undependable supply were major marketing problems when surplus vegetables were moved from this area. The Seward Peninsula market is not large. If new industrial developments or additional military bases are located in the area, a market for seasonal fresh produce would exist. Either natives under guidance or a few white farmers would find ample soil for growing the required crops. It is doubtful that the long cold winters would permit a profitable domestic livestock enterprise. If the laws governing reindeer herding ever are altered to allow ownership, management or both by others than natives, this source of agricultural income might again become important in this area.

Between McGrath and the Kuskokwim Mountains lies an area of several square miles which apparently offers possibilities for a livestock economy. Cheaper land clearing methods (possibly controlled burning and reseeding under permit and supervision of the Bureau of Land Management or the Soil Conservation Service) would be required. Along the streambanks and on other areas where soils are sufficiently well-drained, potatoes and hardy vegetables can be grown. The average frost-free period (1947-51) was 105 days.

Again, the future development of nearby markets and connecting transportation links are necessary prior developments to warrant investment in an agricultural endeavor.

Much remains to be learned about Alaskan soils and their best use. Here a group of technicians from the Soil Conservation Service, the Extension Service, the Experiment Station and the Bureau of Land Management cooperate in studying land use problems in the rolling uplands north of Homer.

Along both the Yukon and Kuskokwim rivers natives have grown gardens for many years. No effort is made to commercialize these small gardens and only a limited variety of vegetables is grown. Should markets become available at some future date, many acres of land suitable for gardening are available along the streambanks and on the larger islands. These lands often are flooded and may receive some fertility from this source. At the same time, there is danger that debris of all kinds will be deposited over the cultivated areas. Native gardens seldom are fertilized, but they produce larger yields where commercial fertilizers are used.

An intensive and integrated program of education, suggestion and example is necessary to encourage the natives to become commercial gardeners. They need continued sympathetic, understanding guidance to expand and improve even their present small gardens.

CROP YIELDS IN ALASKA

Crop yields vary with the location, soil type, cultural practices and innumerable other factors. Adequate records are not available for most areas and for only a few years in the Matanuska and Tanana Valleys. Average yields reported by farmers cooperating on a farm management survey in the Matanuska Valley for the past 4 years have varied widely (Table 1). Wheat yields shown are relatively high and oat and barley yields are low. Wheat production generally is not recommended in this section. New varieties of oats and barley are expected to produce better than varieties previously grown. For example, Edda barley is replacing the older 19B (Trapmar) very rapidly. In trials to date Edda has averaged about 20 bushels per acre more than 19B.

Table 1. — *Average yields of crops reported by farmer cooperators, Matanuska and Tanana Valleys,* 1947, 1949, *and* 1950. [1]

Crop	Average yields per acre				
	Matanuska Valley			Tanana Valley	
	1947 [2]	1949	1950	1949	1950
Potatoes					
Total ----------Tons ------	5.2	7.3	7.5	4.2	6.9
U. S. No. 1-------Tons ------	---	5.5	5.8	3.3	5.2
Grain					
Oats ----------Bushels ---	32	37	33	---	---
Wheat ----------Bushels ---	15	25	20	---	---
Barley ----------Bushels ---	21	21	26	---	---
Oat-pea hay -------Tons ------	1.1	1.5	1.4	1.2	1.4
Oat-pea silage -----Tons ------	5.2	4.6	4.6	---	---
Carrots ----------Cwt. ------	90	130	99	50	68
Cabbages ---------Cwt. ------	63	146	141	160	152
Turnips ----------Cwt. ------	---	---	226	---	100
Lettuce ----------Cwt. ------	64	100	125	---	96
Celery ----------Cwt. ------	177	320	---	---	---

1 *Farming in the Matanuska and Tanana Valleys of Alaska.* Expt. Sta. Bul. 14, Jan. 1952.

2 *Some Economic Aspects of Farming in Alaska* BAE USDA-FM74, Jan. 1950 Table 9.

Longtime estimated average yields for several crops which are widely grown include:

Oats	43 bushels	Potatoes	6.0 tons
Wheat	24 bushels	Cabbage	10.0 tons
Barley	35 bushels	Carrots	5.0 tons
Hay	1.7 tons	Lettuce	6.0 tons
Silage	6.0 tons		

Yields in the Tanana Valley in 1947 were not reported because a serious drought reduced production drastically. Farmers reported "usual" yields to be: Wheat 20 bushels, barley and oats 25 to 30 bushels, potatoes 5 tons, root crops about 10 tons.

Cultivated acreages on the Kenai Peninsula are small and scattered. No average yields are available. It is known that oats, wheat and barley do not usually mature on the Peninsula. Yields of other crops are assumed to be slightly lower than those for similar soil and cultural conditions in the Matanuska Valley. Greater precipitation on the Kenai Peninsula encourages lush growth, but lower temperatures and persistent cloudiness retard rapid development and ripening.

Proper marketing practices are necessary to an expanded agriculture. This display at the 1952 Matanuska Valley Fair was prepared by the Alaska Department of Agriculture to promote better grading and packaging. (Photo by Gyuriak)

MARKETS AND MARKETING

Marketing always is a problem in a new area. Transportation facilities are rudimentary, outlets are unorganized, demand is unstable. Prior to World War II, Alaska farm production was stultified by all these conditions. In addition, most producers had little concept of market grades or market demands.

Under the impetus of the postwar military defense building program, the urban populations have boomed in the Anchorage and Fairbanks areas. A large influx of would-be farmers into agricultural areas occurred at the same time. The increased movement of agricultural products could not function on the former hit-or-miss barter relationship. Grades and standards were the only feasible answer. Adoption of better marketing procedures was speeded by the military requirement that produce purchased by them must be of top quality and meet their specifications. In addition, a few farmers were building a good business with civilians, based on a high quality product.

The Alaska Department of Agriculture (Territorial) now employs licensed inspectors and graders in the Matanuska and Tanana Valleys. Their services are available whenever a sale is to be made on grade.

PUBLIC AGENCIES PROVIDING INFORMATION TO FARMERS AND SETTLERS [1]

There are 9 Federal or Territorial agencies in Alaska dealing with lands, settlement, farm development, markets, conservation and research. The major functions and duties of these organizations are described in the following pages. Detailed information on all phases of Alaskan agriculture can be acquired from one or another of these agencies by writing or calling at their headquarters.

These agencies and their major functions are:

Bureau of Land Management—Public domain and homesteading.

U. S. Forest Service—National forests and forest resources.

Soil Conservation Service—Conservation of soils resources, farm planning and irrigation.

Agricultural Experiment Stations—Agricultural research.

Agricultural Extension Service—Family and farm education.

Production and Marketing Committee—Administration of conservation program under the Production and Marketing Act.

Farmers' Home Administration—Farm ownership and operating loans.

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1 Appreciation is expressed to the administrator of each agency who made information for this section available.

Alaska Rural Rehabilitation Corporation—Farm ownership and operating loans.

Territorial Department of Agriculture—Regulatory work and service.

Functions of the Bureau of Land Management in the Disposition of Lands for Agricultural Purposes in Alaska

The use of or eventual ownership of all public domain must be obtained through the Bureau of Land Management, Department of the Interior. Applications are processed either through the Anchorage Land office which has jurisdiction over the lands in the First and Third Judicial Divisions, or the Fairbanks Land Office which has jurisdiction over lands in the Second and Fourth Judicial Divisions. Because of the tremendous size of Alaska and the daily changing of areas available, no listings of lands are attempted. A potential homesteader must call personally at the appropriate land office to obtain adequate information.

"Available lands" means only that they are unreserved and unappropriated and does not mean that any specific portion is suitable for agriculture. Congress has not yet passed a classification law which would permit the Bureau of Land Management to restrict homestead filings to agricultural land.

Homestead requirements in brief: A maximum of 160 acres may be homesteaded by a U. S. citizen or by anyone who has taken out his first papers. Patent is issued only to citizens.

An entryman, if not a war veteran, lives on the land not less than 7 months per residence year for each of 3 years. He cultivates 1/16 of the total area during the second entry year and 1/8 of the total area during the third entry year and each year thereafter until final proof (documented evidence of completion of requirements) is filed. Final proof must be filed within 5 years of allowance of the entry.

An entryman must construct a habitable house on the land before he files final proof.

A veteran who has served 19 months in the United States military forces in wartime and has received an honorable discharge or was discharged with less than 19 months service because of disability incurred in line of duty, may make final proof if he lives on the land 7 months during the first year and builds a habitable house thereon.

Veterans with less than 19 months service, an honorable discharge, and no service connected disability receive credit towards residence at a graduated scale.

Grazing leases: Unappropriated lands may be leased for the raising of livestock. No minimum acreage is set. The rental depends entirely upon the carrying capacity and months of use. Certain requirements are set up in each lease relative to stocking the lands. Leases usually are issued for 20 years. Applications are filed in the appropriate land offices.

The Forest Service In Alaska

National forests in Alaska are administered by the U. S. Forest Service with regional offices at Juneau and field offices at Ketchikan, Petersburg, Craig, Sitka, Cordova and Seward. The Tongass National Forest includes 16 million acres or 70 percent of southeast Alaska commonly called the Panhandle. The Chugach National Forest includes about 5 million acres and includes the coastal belt surrounding Prince William Sound reaching into the northeastern part of the Kenai Peninsula.

The primary purposes of a national forest are to insure a perpetual supply of timber and to provide for use of all resources within it to secure the maximum goods and services. The topography, cost of clearing land, thin soil, heavy rainfall and cool climate all help to preclude possibilities of agricultural development in these parts of Alaska.

Pulp timber constitutes the main natural resource of these forest areas. Lumbering is profitable on certain favored sites. Therefore, the major developmental emphasis in forestry should be in protective exploitation of these resources.

Besides protecting and aiding in the development of forest resources, the Forest Service has extended forest highways from the principal towns as they have been needed. Concentrated settlement has occurred along these roads. Many miles of trails for recreational, settlement and prospecting use have been established beyond the forest roads.

Homesite tracts not to exceed 5 acres are available for patent in certain sections of the national forests. These tracts usually are located near settlements, on desirable shore spaces, or other spots of settlement pressure. Industrial and resort sites can be developed under special use permits. These places *which are adjacent to settlements* can be patented after a successful business has been established. Long term permits can be issued for sites remote from established communities but such locations usually are not open for patent.

Questions pertaining to possible use of areas or of resources within either of the national forests should be referred to one of the field offices or to the Regional Forester at Juneau.

Functions and Activities of the Soil Conservation Service in Alaska

The Soil Conservation Service in Alaska operates under the administrative direction of the Regional Office in Portland, Oregon. The Alaska headquarters is located in Palmer with district offices at Fairbanks and Homer.

The SCS furnishes technical assistance to farmers through the Alaska Soil Conservation District and 9 sub-districts. Each sub-district has a governing body composed of 5 farmer supervisors elected by farmers within the sub-district. The Alaska Soil Conservation Board composed of 3 farmers is appointed by the Territorial Board of Administration. It is this group of farmers who plan and carry out the soil conservation program in Alaska with technical assistance made available by the SCS and other agencies.

The staff of the SCS is available through the district office in Fairbanks for the Fairbanks and Salcha-Big Delta sub-districts. The office in Palmer works with the Palmer, Wasilla, Chugiak and Anchorage sub-districts, and the Homer office works with the Kenai-Kasilof, Ninilchik and Homer sub-districts.

The type of assistance given farmers through these districts is much the same as that extended in the States through districts. Upon request, each farmer receives a soils map of his farm showing the kinds of land on the farm. In addition to the map, the SCS also helps the farmer work out a plan of development and management best suited to his land and to his experience in farming. SCS technicians work closely with the staffs of the Experiment Stations and the Extension Service of the University to make the farmer's plan up to date.

Information is available on soils in many areas open to homesteading. Through the Palmer office, assistance is available on design, installation and operation of irrigation systems. The Service also assists farmers in design and layout of drainage systems and provides cost estimates on irrigation and drainage. Assistance is also provided for the technical phases of permanent type practices paid for under the Agricultural Conservation Program.

The Soil Conservation Service, The Soil Conservation Board, and the Bureau of Land Management are cooperating in detailed soil surveys to determine the location and extent of land suitable for agricultural use and the methods of farming necessary to maintain these lands for permanent agriculture. By December 1952 over a million acres of Alaska's lands had been covered by detailed surveys. These areas include the Matanuska Valley, Anchorage, coastal area of the Kenai Peninsula south to the head of Kachemak Bay, Fairbanks and sections along the Richardson Highway to Big Delta. Soils information on these areas can be secured from the District or from the Palmer office of the Soil Conservation Service.

Functions of the Alaska Agricultural Experiment Stations

Agricultural experimental work in Alaska has been conducted jointly by the Territorial and Federal governments since 1946. Headquarters and major technical laboratories are located in Palmer. The Fur Experiment Station is located near Petersburg, the Matanuska experimental farm is near Palmer and the Fairbanks experimental farm is near the University of Alaska at College.

Station scientists are responsible for adaptation to and testing for adaptation to Alaska conditions crops, techniques and materials developed elsewhere and conducting research in breeding new strains and varieties of crops. Methods of storage for grains, forages, potatoes and vegetables; weed and insect control; poultry and animal feeding and housing; dairy and beef breeding; soil characteristics and farm and market economics are other major fields currently being studied.

Working under the Station Director are 8 departmental staffs: agricultural economics, agricultural engineering, agronomy, animal husbandry, entomology, horticulture, plant pathology and soils and chemistry. Specialists in these various research fields also are responsible for technical extension work in Alaska.

Progress reports on the research program of the Station are published each year. Bulletins and other special reports are published as projects are completed or as research information becomes available. Requests for technical information about specific agricultural problems are answered by the research departments involved.

Staff members work closely with all Federal, Territorial and private agencies on problems pertaining to areas for settlement, agricultural development, adapted crop and livestock enterprises, land use and related problems.

Functions of the Agricultural Extension Service

The cooperative extension program in agriculture was started in Alaska in 1930 when the provisions of certain land-grant acts were extended to the Territory's land-grant college. The purpose of this service as it developed over the previous 20 years in the United States was to carry new technologies, techniques and information to farmers and rural families. As populations in the United States continued their suburban migration, the aims of the Extension Service have been modified to deal with social and technical problems encountered in urban as well as country living. Extension objectives always have been concerned with promoting richer family life.

Typical extension organization is based on county agents (district agents in Alaska) who work with farmers and farm groups in defining local agricultural production and marketing problems and seeking satisfactory solutions. Home Demonstration Agents round out the county program in their work with families, 4-H and other club groups. A staff of specialists is now being assembled for the first time in Alaska. Their specific function is to bridge the gap between Agricultural Experiment Station research and the farm home. They interpret research results and expedite distribution of timely information to farmers. In Alaska it is anticipated that they will work more closely with individual farmers than is customary in the States where they usually work through district agents.

Home demonstration agents are now located in Fairbanks, Palmer, Anchorage, Homer, Juneau and Ketchikan. Agricultural agents are located in Fairbanks, Palmer, and Homer. The administrative offices are on the University Campus at College. The specialists are part-time research technicians and are headquartered at Palmer where they function as part of the Experiment Station staff.

Functions of the Production and Marketing Committee

Provisions of the Production and Marketing Act are now administered in the Territory by an all-farmer committee recently designated by the Secretary of Agriculture. Chairman is Bert Stimple of Fairbanks. The other two members are Jack Newcombe of Palmer and Ed Liebenthal of Homer.

In general the duties of this committee are to administer such portions of the Production and Marketing Act as may be extended to the Territory. At the present time the only provision of this Act applied to Alaska is the Agricultural Conservation Program (ACP), designed to induce farmers with cash payments to adopt and continue certain recognized conservation practices. This work was formerly administered by the Extension Service. As in the past the responsibility for technical inspection of ACP practices rests with the Soil Conservation Service. In 1952 approximately $27,000 was disbursed to Alaskan farmers who cooperated in this program.

The Farmers Home Administration In Alaska

Federal loans to agriculture in Alaska are available through the Farmers Home Administration. Inquiries and loan applications should be sent to the Area Supervisor, Federal Building, Anchorage.

An applicant for loans must have had actual experience in farming and have been reared on a farm or have had agricultural training. He must want to farm permanently, plan to spend most of his time farming, and earn most of his income from farming. If he is a renter, he must be able to get a lease that will let him carry out the recommended practices in his farm-and-home plan. Veterans receive preference on all loan services.

Money is available for 3 types of loans:

1. Farm operating loans—to buy livestock, equipment, seed, feed, or supplies for farming.
2. Farm ownership loans—to buy family size farms or to enlarge or develop presently inadequate units.
3. Farm housing loans—to construct, remodel, or repair houses and other farm buildings.

Farm operating loans bear 5 percent interest and are repayable in 1 to 7 years. An operator may borrow needed amounts up to $7,500 in any 1 year up to a maximum operating indebtedness of $10,000. These loans are secured by first mortgages on the livestock or equipment financed with the money or by a mortgage on the crops to be grown during the year of the loan.

Farm ownership loans bear 4 percent interest and may be amortized over 40 years. The upper limit on ownership loans is $12,500. They are available to applicants who currently or recently earned most of their living from farming or veterans who have completed approved farm training courses. These loans are used to buy family-type farms, to enlarge farms through purchase of additional land or through field improvement, and to develop under-improved places through a construction program.

Applications for loans must be reviewed by the FHA "county" committee of 3 leading local citizens. Loans are made only to applicants certified by the committee. Loans are made on the basis of farm-and-home plans worked out by the borrower with the help of the supervisor. The amount of the loan is based on the needs as developed in the approved plans.

The Alaska Rural Rehabilitation Corporation

The Alaska Rural Rehabilitation Corporation is an Alaskan nonprofit, charitable and benevolent corporation with offices at Palmer, Alaska. This corporation was originally organized to receive a grant of federal money through the Federal Emergency Relief Administration to set up and operate the Matanuska Valley Colonization Project.

By 1946 the project was completed except for the servicing of the 30-year purchase and development contracts arising out of the colonization project. Shortly thereafter, the corporation, having approximately 1 million dollars in assets remaining from the original grant, entered on the policy of receiving applications of loans for agricultural development outside of the original colonization project, as well as to furnish, when required, additional financing on areas within the project.

At the present time, loans to qualified resident Alaskans will be made by the ARRC for agricultural purposes. Generally speaking, the period of repayment on such loans will not exceed 5 years for improvements to real property, and 3 years for the purchase of chattel property. Interest rates on loans secured by a first real estate mortgage are usually made at 4 percent, while seed and fertilizer and other chattel loans bear interest at 6 percent. A lack of sufficient working capital restricts the magnitude of ARRC operations, but applications for loans will be given consideration for the development of agriculture in any part of the Territory.

Other operations of the corporation are concerned with land clearing, counsel of prospective settlers, and assisting cooperatives and individuals working for the improvement of marketing and storage facilities in Alaska.

Functions of the Territorial Department of Agriculture

The Alaska Department of Agriculture is a regulatory office. It is charged with the authority "to acquire and to diffuse among the people of the Territory information on subjects connected with agriculture, to control and regulate the entry into and transportation within the Territory of seeds, plants and other horticultural products, and to control and eradicate the spread of pests injurious to plants, trees, vegetables, livestock, poultry, to aid in developing the utilized and not utilized agricultural resources of this Territory, to experiment and determine practical methods of growing, processing, soil analysis, eradication of obnoxious weeds, control of insects, cheaper and more satisfactory methods of land clearing."

Vegetable inspection and grading of produce grown in the Territory is carried out by marketing specialists and vegetable inspectors hired for this purpose. One inspector is stationed in Palmer and another takes care of the Fairbanks area. This service has made Alaskan products acceptable to both military and civilian markets alike. Seed and nursery stock inspection regulations are instituted and carried out by the Territorial Department of Agriculture on all imports into the Territory.

The Alaska Department of Agriculture retains 2 veterinarians to assist farmers and livestock producers with their problems. A brucellosis and tuberculosis eradication program under the supervision of the department is carried out by the veterinarians. Meat inspection and slaughter house regulations are enforced to protect the health of the public.

Bulletins on homesteading in Alaska and agricultural opportunities in the Territory are available at no charge to anyone who may be interested. These bulletins are written and revised in this department. A bi-monthly magazine "The Alaska Farmer" is put out by the Department of Agriculture, being mailed free of charge to interested parties. The "Alaska Market News" is sent out once a month to those desiring this publication. This is a report of current prices and the general outlook, plus a summary of weather data and a weather outlook. Agricultural statistics and reports are compiled by this office and kept on record for comparison and information.

General information on land clearing, varieties of seed suitable for Alaska's growing conditions, agricultural assistance of all kinds, soil testing, testing and germination of seed and any other information the department can supply are the objects and duties set forth in the Act.

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